

**REMARKS**

Claims 4, 11, 12, 14, 16, and 18 are rejected under 35 U.S.C. 112, second paragraph. Claims 1, 2, 4-7, 10-12 and 16-18 are rejected under 35 U.S.C 102(b) as being anticipated by Mueller et al. (USPN 4404241). Claims 1-3 are rejected under 35 U.S.C 102(b) as anticipated by or, in the alternative, under 35 U.S.C 103(a) as obvious over Mueller et al. Claims 1, 9, 10, 13 and 14 are rejected under 35 U.S.C 103(a) as being unpatentable over Mueller et al. Claims 8 and 15 are rejected under 35 U.S.C 103(a) as being unpatentable over Mueller et al. as applied to claims 1 and 10 above, and further in view of Inoue. Claim 9 is rejected under 35 U.S.C 103(a) as being unpatentable over Mueller et al. as applied to claim 1 above, and further in view of Mazurek et al.

**1. Objection over drawings under 37 CFR 1.84(p)(4) and (p)(5):**

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "10" and "12" in Figures 2A and 4 both point to the same part. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because Fig. 4 does not include the following reference sign(s) mentioned in the specification description: 110. A proposed drawing correction or corrected drawings are required in reply

to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5 **Response:**

Fig.2A, Fig.4, and Fig.5 are corrected. The reference characters 12 in both of the amended Fig.2A and Fig.4 point to the top surface of the structure 10 clearly. A reference sign 110 is added in amended  
10 Fig.5 for corresponding to the description in the specification, as requested by the Examiner.

**2. Rejection over claims 4 and 14 under 35 U.S.C. 112:**

Regarding claim 4 and 14, the phrase "paper-like"  
15 renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by materials "like" paper), thereby rendering the scope of the claim(s) unascertainable.

20 **Response:**

Claims 4 and 14 are amended. The phrase "paper-like" is removed from claims 4 and 14. Reconsideration of the amended claims 4 and 14 is politely requested.

25 **3. Rejection over claim 11 under 35 U.S.C. 112:**

Claim 11 recites the limitation "the surface" in line 1 of the claim. There is insufficient antecedent basis for the limitation in the claim. The examiner has interpreted this phrase to be "the top surface"  
30 of the composite film.

**Response:**

Claim 11 is amended by replace the term "the surface" with the term "one side of the composite film". Reconsideration of the amended claim 11 is politely requested.

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**4. Rejection over claim 16 under 35 U.S.C. 112:**

Claim 16 recites the limitation "the sealing layer" in line 1 of the claim. There is insufficient antecedent basis for the limitation in the claim. The examiner suggests amending this claim to show dependency from Claim 11, rather than dependency from Claim 10.

**Response:**

Claim 16 is amended as requested by the Examiner. Reconsideration of the amended claim 16 is politely requested.

**5. Rejection over claim 18 under 35 U.S.C. 112:**

Claim 18 recites the limitation "the polymer layer" in line 2 and 3 of the claim. There is insufficient antecedent basis for the limitation in the claim. The examiner has interpreted this phrase to be "the composite film".

**25 Response:**

Claim 18 is amended as requested by the Examiner. Reconsideration of the amended claim 18 is politely requested.

**30 6. Rejection over claims 4, 12 and 14 under 35 U.S.C. 112:**

Claims 4, 12 and 14 contain the trademark/trade

name Surlyn<sup>TM</sup>. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a Dupont ionomer and, accordingly, the identification/description is indefinite.

**Response:**

Claims 4, 12 and 14 are amended and the trademark/trade name Surlyn<sup>TM</sup> is removed. The limitation "ionomer" is added to describe the material in amended claims 4, 12 and 14. Reconsideration of amended claims 4, 12 and 14 is politely requested.

**7. Rejection over claims 1, 2, 4-7, 10-12 and 16-18 under 35 U.S.C 102(b) :**

Claims 1, 2, 4-7, 9, 10-12 and 16-18 are rejected under 35 U.S.C 102(b) as being anticipated by Mueller et al. for reasons of record, as recited in previous office action, paper number 6.

**Response:**

Claims 1 and 10 are amended by particularly pointing

out the feature of the present invention. The newly added portions in the amended claims 1 and 10 are disclosed on page 9, lines 1-14 of the present application. No new matter is introduced.

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To show the major differences/non-obviousness, the amended claim 1 is repeated below:

10 "1. (Once amended) A composite film comprising:  
a polymer composite layer having two sides with a plurality of tiny gaps **which are pseudo-closed for air permeation initially, the size of the tiny gaps being varied according to a pressure difference between the two sides of the polymer composite layer;** and  
15 a nonstick sealing layer attached to one side of the polymer composite layer for filling the gaps to prevent air permeation;  
wherein when heated by hot air, the heat of the hot  
20 air will degrade the sealing ability of the sealing layer, or open the pseudo-closed tiny gaps, and the hot air can easily permeate through the sealed gaps of the polymer composite layer when the air pressure exerted by the hot air on the first side of the composite  
25 film is greater than the air pressure on the other side of the composite film; on the other hand, when the heating source is removed, the temperature of the composite film decreases and the sealing ability of the sealing layer is restored."

30

In the present invention, an impression process is used to form a plurality of tiny gaps on the composite

film for air permeation. The process to manufacture the gaps is clearly disclosed in the specification. It is important to point out that after the impression process, both the weight and the appearance of the substrate remain the same, and only gaps are formed. Due to the mechanical principle, the inner force of the material tends to seal the gaps so as to make the gaps nearly closed. In another words, the tiny gaps are pseudo-closed initially while no pressure difference between both sides of the composite film is applied. When the pressure difference between the two sides of the composite film increases, the tiny gaps are expanded gradually and the diffusion rate of the vapor or air is also increasing at the same time so as to adjust the permeability of the composite film.

In contrast with the prior art, in Mueller's process for manufacturing the microwaveable composite package, the substrate must be punched via a die cutting process to form a series of longitudinally spaced apertures. This die cutting process or so called "punching" process in Mueller's invention is quite different from the impression process in the present invention. In the die cutting process taught by Mueller, the apertures become openings or holes and part of the substrate is cut off in the die cutting process. There is evidence that the apertures formed in Mueller's invention has a diameter in a range of 1/4 to 1 inch as shown in Col. 5 lines 5-8. It is obvious that the size of the apertures in the Mueller's invention is constant and it is too large to provide a function of adjusting permeability.

In fact, Mueller et al. have to use an additional hot melt material for permeability control. Although a nonstick sealing layer is also disclosed in the present invention, the nonstick sealing layer is used to assist in sealing the gaps in advance. The permeability of the composite film of the present invention is controlled by the size of the tiny gaps. Therefore, the nonstick sealing layer is optional for the present invention as disclosed in the independent claim 10.

In addition, the mechanism of permeability control is based on the gap size, which is varied by the pressure difference applied on the composite film according to the present application. The mechanism of permeability control used in Mueller's invention is based on the flow rate of the hot melt material in the melting state, which is varied according to temperature and pressure. Therefore, the present application is obviously different from Mueller's invention.

From the aforementioned reasons, the Applicant believes that the independent claims 1 and 10 of the present application shows difference/non-obviousness since there is a major difference between the present application and the prior art references. Reconsideration of claims 1 and 10 is politely requested.

Claims 2, 4-7, 11-12 and 16-18 are dependent on the amended claims 1 and 10 and should be allowed if the amended claims 1 and 10 are allowed. Reconsideration of claims 2, 4-7, 11-12 and 16-18 is hereby requested.

**8. Rejection over claims 1-3 under 35 U.S.C 103(a) :**

Claims 1-3 are rejected under as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mueller et al for reasons of record, as recited in previous office action, paper number 6.

**Response:**

As aforementioned, the Applicant believes that the independent claim 1 of the present application shows difference from the Mueller's invention. Claims 2 and 3 are dependent on the amended claim 1 and should be allowed if the amended claim 1 is allowed. Reconsideration of claims 1-3 is hereby requested.

**9. Rejection over claims 1, 9, 10, 13 and 14 under 35 U.S.C 103(a) :**

Claims 1, 9, 10, 13 and 14 are rejected under 35 U.S.C 103(a) as being unpatentable over Mueller et al for reasons of record, as recited in previous office action, paper number 6.

**Response:**

Regarding the Tanimura's invention, only a method for producing synthetic paper by using a list of common synthetic fibers is disclosed. As a result, the Applicant believes that the independent claims 1 and 10 of the present application show difference and non-obviousness from the combination of the Mueller's invention and the Tanimura's invention. Claims 9, 13 and 14 are dependent on the amended claims 1 and 10 and should be allowed if the amended claims 1 and 10



are allowed. Reconsideration of claims 1, 9, 10, 13 and 14 is hereby requested.

**10. Rejection over claims 8 and 15 under 35 U.S.C 103(a) :**

5 Claims 8 and 15 are rejected under 35 U.S.C 103(a) as being unpatentable over Mueller et al. as applied to claims 1 and 10 above, and further in view of Inoue for reasons of record, as recited in previous office action, paper number 6.

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**Response:**

Claims 8 and 15 are dependent on the amended claims 1 and 10 and should be allowed if the amended claims 1 and 10 are allowed. Reconsideration of claims 8 and 15 is hereby requested.

**11. Rejection over claim 9 under 35 U.S.C 103(a) :**

20 Claim 9 is rejected under 35 U.S.C 103(a) as being unpatentable over Mueller et al. as applied to claim 1 above, and further in view of Mazurek et al for reasons of record, as recited in previous office action, paper number 6.

**Response:**

25 Claim 9 is dependent on the amended claim 1 and should be allowed if the amended claim 1 is allowed. Reconsideration of claim 9 is hereby requested.

**VERSION WITH MARKINGS TO SHOW CHANGES MADE****In the claims:**

1. (Once amended) A composite film comprising:
- 5 a polymer composite layer having two sides with a plurality of [pseudo-closed] tiny gaps [for air permeation] which are pseudo-closed for air permeation initially, the size of the tiny gaps being varied according to a pressure difference
- 10 between the two sides of the polymer composite layer; and
- a nonstick sealing layer attached to one side of the polymer composite layer for filling the gaps to prevent air permeation;
- 15 wherein when heated by hot air, the heat of the hot air will degrade the sealing ability of the sealing layer, or open the pseudo-closed tiny gaps, and the hot air can easily permeate through the sealed gaps of the polymer composite layer when the air pressure
- 20 exerted by the hot air on the first side of the composite film is greater than the air pressure on the other side of the composite film; on the other hand, when the heating source is removed, the temperature of the composite film decreases and the
- 25 sealing ability of the sealing layer is restored.
4. (Once amended) The composite film of claim 1 wherein the polymer layer contains one or more layers each made by one of the following materials: acrylic
- 30 resins, polyester, polyethylene (PE), polypropylene (PP), copolymer of PE and PP, ethylene-styrene copolymer (ES), cyclo olefin,

polyethylene terephthalate (PET), polyvinyl alcohol (PVA), ethylene-vinyl acetate (EVA), [Surllyn™ (Dupont ionomer)] ionomer, polyethylene naphthalate (PEN), poly ether ether ketone (PEEK),  
5 polycarbonate (PC), polysulfone, polyimide (PI), polyacrylonitrile (PAN), styrene acrylonitrile (SAN), polyurethane (PU), synthetic papers, glassine papers, or polyolefin coated paper[ or paper-like materials].

10

10. (Once amended) A composite film comprising a first layer, and a second layer laminated on the first layer, the composite film comprising a top face on the first layer and a bottom face on the second layer,  
15 the composite film being perforated by virtue of an impression process, thereby forming a plurality of tiny gaps in the composite film [for air permeation] which are pseudo-closed for air permeation initially, the size of the tiny gaps being varied according to a pressure difference between the two sides of the composite layer.

20

11. (Once amended) The composite film of claim 10 wherein [the surface of ] the composite film further  
25 comprises a sealing layer attached to one side of the composite film for [that ] filling[s] the tiny gaps.

12. (Once amended) The composite film of claim 10 wherein  
30 the first layer is made from one of the following materials: acrylic resins, polyester, polyethylene (PE), polypropylene (PP), copolymer of PE and PP,

ethylene-styrene copolymer (ES), cyclo olefin,  
polyethylene terephthalate (PET), polyvinyl  
alcohol (PVA), ethylene-vinyl acetate (EVA),  
[Surllyn™ (Dupont ionomer)] ionomer, polyethylene  
5 naphthalate (PEN), poly ether ether ketone (PEEK),  
polycarbonate (PC), polysulfone, polyimide (PI),  
polyacrylonitrile (PAN), styrene acrylonitrile  
(SAN), or polyurethane (PU).

10 14. (Once amended) The composite film of claim 13 wherein  
the second layer is composed of a material selected  
from a group comprising acrylic resins, polyester,  
polyethylene (PE), polypropylene (PP), copolymer  
of PE and PP, ethylene-styrene copolymer (ES), cyclo  
15 olefin, polyethylene terephthalate (PET),  
polyvinyl alcohol (PVA), ethylene-vinyl acetate  
(EVA), [Surllyn™ (Dupont ionomer)] ionomer,  
polyethylene naphthalate (PEN), poly ether ether  
ketone (PEEK), polycarbonate (PC), polysulfone,  
20 polyimide (PI), polyacrylonitrile (PAN), styrene  
acrylonitrile (SAN), polyurethane (PU), synthetic  
papers, glassine papers, or polyolefin coated  
paper[ or paper-like materials].

25 16. (Once amended) The composite film of claim 11[0]  
wherein the sealing layer is made from fatty acids  
or their derivatives, starch, amyloid materials or  
their derivatives, lipids, oleaginous materials,  
wetting agents, or waxes.

30 18. (Once amended) The composite film of claim 10 wherein  
the gaps are [evenly] distributed throughout the

whole area or distributed within selected areas of  
the composite film [polymer layer].

5

Sincerely yours,

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WQ<sup>TM</sup>  
WAVEQUICK

# Innovative Packaging Materials for Microwaveable Foods

## Features

- Easy to use and cost effective
- Energy efficient, reusable and recyclable
- Available in a variety of packaging materials (multiple layer or single layer substrates) to meet a wide range of temperature requirements
- Preserves organoleptic quality (taste and moisture) and nutritional value of foods
- No need to puncture or open the cover lid prior to cooking or heating the foods
- Regulates pressure automatically while food is being heated
- Replaces current packaging material without altering equipment configuration

## Specifications

- Packaging materials in roll stacks or sheets
- Storage bags and zipper bags
- Custom designed to meet customer requirements (any combination of sizes, thickness and materials)



## Applications

Automatic packaging of frozen and refrigerated food (both cooked and uncooked):

TV Dinner, Spaghetti, Hamburger, Hot Dogs, Tacos, Seafood, Dessert, Vegetables, Chinese Cuisine, etc.



Multi-Nations Patent Pending

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